Fanshawe College

2016

Plumbing Techniques Business Plan

Fanshawe College

STAGE GATE 2

BUSINESS PLAN FOR NEW PROGRAMS

1.0 Program Specifications

Proposed program title: Plumbing Techniques

Proposed credential:

- ☐ Local Board Approved Certificate
- ☒ Ontario College Certificate
- ☐ Ontario College Diploma
- ☐ Ontario College Advanced Diploma
- ☐ Ontario College Graduate Certificate
- ☐ Collaborative Degree
- ☐ Degree

MTCU program code (if it exists): 41010 Plumbing Techniques

MTCU program code comparables: 41007, 45613

Proposed Classification of Instructional Program Codes, formatted as ##.####:

46.0503 and 46.0599

Plumbing Technology/plumber - This instructional program class comprises any program that prepares individuals to practice as licensed plumbers by applying technical knowledge and skills to lay out, assemble, install, and maintain piping fixtures and systems for steam, natural gas, oil, hot water, heating, cooling, drainage, lubricating, in home and business environments. These programs include courses in source determination, water distribution, waste removal, pressure adjustment, basic physics, technical mathematics, blueprint reading, pipe installation, pumps, welding and soldering, plumbing inspection, and applicable codes and standards.

For additional information, please refer to most recent Classification of Instructional Programs (CIP) Canada published by Statistics Canada, available on http://www.statcan.gc.ca/.

Projected four-digit National Occupational Classification Codes (3 maximum), formatted as ####:

1. **7251 Plumbers** – Plumbers install, repair and maintain pipes, fixtures and other plumbing equipment used for water distribution and waste water disposal in residential, commercial and industrial buildings. They are employed in maintenance departments of factories, plants and similar establishments, by plumbing contractors, or they may be self-employed.

For additional information, please refer to most recent National Occupational Classification (NOC) Canada published by Statistics Canada, available on http://www.statcan.gc.ca/.

Identify all deliveries of this or a comparable program that have been or are currently offered at Fanshawe (including CE and/or Regional Campuses): None **Describe deliveries: N/A**	
Proposed program launch date: Fall 2017	
Proposed intake(s):	☒ Fall ☐ Winter ☐ Spring ☐ Other:
Number of students in first intake: 24	
Length of program: • Number of semesters: 2 • Semester length in weeks: 15 • Total program hours: 600	
Program delivery (check as many as apply)	☒ Web-facilitated (face-to-face) ☐ Blended ☐ Online ☐ Fast-track ☐ Accelerated ☐ Collaborative ☐ Weekend ☐ Other
Co-op program	☒ No ☐ Yes ☐ Experiential co-op (required to graduate) ☐ Mandatory co-op (not required to graduate but fee is mandatory) ☐ Optional co-op (not required and fee only charged if students opt in)

2.0 Executive Summary

OVERVIEW

The Plumbing Techniques program is a one year (two semester) Ontario College Certificate program consisting of 600 hours of instruction, designed to prepare graduates for entrance into a plumbing career, through the understanding of theoretical and practical aspects of the plumbing trade and the associated tools and materials. Students will participate in practical application of fundamental plumbing activities in labs on site at the College in addition to the theory learned in a face-to-face web-enhanced environment. This is an entry level credential and students are not required or qualified to become members of a professional or regulatory body upon completion.

STRATEGIC ALIGNMENT

Offering the Plumbing Techniques program as part of the Faculty of Technology – Donald J. Smith School of Building Technology aligns with Fanshawe College's area of institutional strength, "**Building Technologies**", as identified in the Strategic Mandate Agreement.

This program also supports the College's strategic goals to **increase enrollments** as well as community partnerships and collaborations. It will serve to invite students to test their ability, talent and interest in the plumbing field, and help them determine the best fit for their career. As a result, the program enhances the likelihood of success, **preparing the student for their desired career goal**. This program supports the College's plan to create a **sustainable enrollment strategy** by exposing students to the plumbing trade and opening new possibilities for apprenticeship or one of the other trade disciplines offered in the Donald J. Smith School of Building Technology. In addition, this program has been deliberately created in collaboration with relevant local employers to ensure success for students upon their graduation. Students will have access to faculty and community partners with expertise in the plumbing field, exposure to a variety of plumbing skills in the exceptional state-of-the-art labs that presently exist at Fanshawe, support and coaching on site, a solid program design, and all of the student-focused services offered by Fanshawe College; they will enjoy a **premiere learning experience.**

COMPETITION

There are Plumbing Techniques programs offered at other colleges in Ontario including George Brown, Humber, Sir Sanford Fleming, and St. Clair. The main cluster of colleges appears to be around the Toronto area with a large catchment gap between Humber and St. Clair; this gap includes the area in which Fanshawe students would be derived. According to the student demand data, students applying and enrolling in this type of techniques program within the Ontario College Certificates one year programs typically come from their own catchment area.

PATHWAYS

Successful completion of this program will create an opportunity for students to have a greater chance of being hired by a company that will then sponsor them in the apprentice program (plumbing). The program also provides students with a solid foundation and pathway to continue their education in other trade related careers.

STUDENT DEMAND

The demand for the Plumbing apprenticeship program has remained steady and will help to build awareness in the profession. Industry partners have asked for this type of program due to the success of finding students that are committed to the field of plumbing and due to the related success of our electrical techniques program. The external panel, most of whom were potential employers, expressed significant interest in the development of this program including offers to advise on curriculum, participate on PAC, provide co-op or field placement, teach part-time or be a guest speaker, provide a tour, and interestingly, 2 panel members offered to provide a scholarship or award and 2 offered to donate equipment, materials or funds. This response from the community panel supports the need for and interest in this program development.

LABOUR MARKET DEMAND

According to the Program Development Data Report (July 2015), "the London CMA projects job opportunities for plumbers." This includes a projected growth of 94 positions annually from 2013 to 2021. It is also noted from the shift share analysis, that other areas sharing similar job growth for plumbers are Toronto and Hamilton. These numbers in conjunction with the panel support and steady enrollment in the plumbing apprenticeship program demonstrate that this program will have solid enrollment.

REQUIRED RESOURCES

Very few resources are required for the offering of this program due to the current existence of a lab for students to practice hands-on skills. This program could add to the efficiency of the scheduled use of this lab which is currently an underused space.

3.0 Academic Programming and Quality Assurance

Note: Appendices A-D have been submitted to the Credential Validation Services in Stage Gate 2 and have been validated.

3.1	Program Vocational Learning Outcomes ***Consultation: CAE***	→ See ***Appendix A: Form 1 – Program Vocational Learning Outcomes.***
3.2	Essential Employability Skills Learning Outcomes ***Consultation: CAE***	→ See ***Appendix A: Form 2 - Essential Employability Skills Outcomes.***
3.3	Program Description ***Consultation: CAE and Registrar's Office***	→ See ***Appendix B: Program Description.***
3.4	Course Descriptions ***Consultation: CAE***	→ See ***Appendix C: Program Curriculum.***
3.5	Relationship to Professional or Licensing Bodies ***Consultation: CAE***	→ See ***Appendix D: Regulatory Status Form.***
3.6	Curriculum Design and Delivery	→ See ***Appendix E: Curriculum Map - Program VLOs and EESOs.***

The proposed courses within the Plumbing Techniques program align with the vocational learning outcomes and essential employability skills outcomes. Theory classes will provide opportunities for cognitive learning that will be reinforced during the experiential, lab based section of the program. The essential employability skills are important to this vocation and are imbedded within the curriculum.

This program is using similar design and delivery as the Plumbing Apprentice program to meet the needs of the experiential learner. The Plumbing Techniques program uses elements of the corresponding apprentice program and these will be used as the basis for the full development of the courses in this program in stage-gate III. These courses are foundational in nature for the applied skilled trades industry and will be necessary in helping students' understanding of more advanced concepts if they choose to continue their pathway to the apprenticeship and diploma programs.

Both the level one and two courses utilize face-to-face web-enhanced delivery methods. Experiential learning is incorporated in both levels due to the nature of the program.

3.7 Research and Innovation

Consultation: From discussion with Dan Douglas June 19, 2015 (via email response)

In order to develop research and innovation skills, students will engage in at least one of the following activities:

- Students will conduct a comparative analysis of two similar (or dissimilar) systems or products to determine the best system or product for a defined application.
- Students will investigate an innovation within their discipline that was introduced within the prior two years. They will identify how this innovation has impacted their discipline and predict where this innovation may lead in the future.
- Students will conduct a literature review based on a narrowly defined element of their discipline and include a critical analysis of their source(s).
- Students will conduct experiments to determine best practice or best performance in fabrication and/or installation of mechanical and plumbing systems.

4.0 Fit of Program

4.1 Gap Analysis

This program will be similar to Electrical Techniques and Auto Body Techniques programs as a pathway for students to continue with their studies in the Plumbing Apprentice (PLA1), Construction Carpentry Techniques (CCQ3), and Construction Engineering Technician (CSN3) programs. As such it will provide greater breadth to our current program offerings.

This program will be a feeder program to the existing apprenticeship programs such as Plumbing, and Gas Technician and will help prepare students for potential further movement into skilled trades.

Conestoga, Georgian, George Brown, Humber, Mohawk, and the Pre-Apprenticeship Training Institute (PAT) offer similar programs; however, students applying to and enrolling into Ontario College Certificates primarily come from within their catchment area, and this applies to Fanshawe as well.

Currently the industry is not offering any similar educational path as it is regulated by the College of Trades. This introductory techniques program is not regulated as it is a foundational program.

4.2 Key Performance Indicators (KPIs)

Program		Academic Year Of Graduation	2012-2013	2013-2014	2014-2015
MTCU Title	MTCU Code				
Electrical Techniques	45613	Graduate Count	91	105	86
		Employment Rate**	46%	38%	47%
		Employment Rate in a Related Field***	87%	94%	88%

Program		Academic Year Of Graduation	2012-2013	2013-2014	2014-2015
MTCU Title	MTCU Code				
Construction Carpentry Techniques	48200	Graduate Count	55	63	73
		Employment Rate**	79%	72%	46%
		Employment Rate in a Related Field***	93%	100%	92%

Program		Academic Year Of Graduation	2012-2013	2013-2014	2014-2015
MTCU Title	MTCU Code				
Mechanical Techniques – CNC	41007	Graduate Count	14	31	14
		Employment Rate**	56%	77%	83%
		Employment Rate in a Related Field***	89%	85%	83%

*KPIs are to be calculated in accordance with the methods prescribed by MTCU. KPIs are based on graduates of MTCU approved full-time postsecondary programs whose funding status is shown in the graduate record layout as MTCU operating grant, Co-op Diploma Apprenticeship or Second Career, and who were surveyed by telephone.
** Employment Rate = (number of survey respondents employed Full-time or part-time, related or unrelated) / (number of survey respondents in labour force)
*** Employment Rate in a Related Field = (number of survey respondents employed Full-time or part-time, related) / (number of survey respondents in labour force)

A comparison was conducted to include other “techniques” programs to establish the likelihood of graduation and employment at the conclusion of these similar one-year programs. The most noteworthy observations of this KPI table is the high rate of employment in a related field. This rate is high and remains high for all three techniques programs for the past 3 years. It is anticipated that the Plumbing Techniques program would experience the same positive trend.

Other colleges within the region approved for funding to offer programs in this same MTCU code:

There is only one college in Southwestern Ontario offering the Plumbing Techniques program. There are a further two in the GTA and one in Northern Ontario; however, it is not anticipated that these colleges would be impacted by the development of this program. There is a broad catchment area between St. Clair College and those in the GTA offering this program that can be actively pursued by Fanshawe College. College students enrolled in one-year programs generally tend to stay within their own catchment area preferring to avoid the high costs of travel; a promising scenario for the prospects of a solid enrollment in the Plumbing Techniques program.

#	College	Name of Program	Duration	Delivery Format	Partnerships/Transfers	Annual tuition Fees
1	GEOR	Plumbing Techniques	1 year	appears to be traditional f2f format including shop/lab time	Any Available Algonquin College Ontario College Diploma Program Discipline/Division & Program Area	$ 3,833.06 includes ancillary fees
2	GRBR	Plumbing Techniques	1 year	appears to be traditional f2f format including shop/lab time	Any Available Algonquin College Ontario College Diploma Program Discipline/Division & Program Area	$ 4,938.00 includes ancillary fees
3	HUMB	Plumbing Techniques	1 year	appears to be traditional f2f format including shop/lab time	Any Available Algonquin College Ontario College Diploma Program Discipline/Division & Program Area	$ 3,900.82 includes ancillary of $1,152.50
4	SSFL	Mechanical Techniques - Plumbing	1 year	appears to be traditional f2f format including shop/lab time	Any Available Algonquin College Ontario College Diploma Program Discipline/Division & Program Area	$4,170.52 includes ancillary fees
5	STCL	Plumbing Techniques	1 year	appears to be traditional f2f format including shop/lab time	Any Available Algonquin College Ontario College Diploma Program Discipline/Division & Program Area	$3,843.70 includes ancillary fees

4.3 Partnerships Supporting New Program

External stakeholders have indicated willingness to participate in this program in the following ways:

☒ Continuing on Advisory Committee ☒ Teach a course

☒ Provide placement or experiential learning (e.g. co-op, field placement, mentorship)

☒ Present as a guest speaker ☒ Provide a tour

☒ Research (project, partnership etc.) ☒ Donation, Scholarship, Award

☐ Other:

External partnerships will include local companies (external panel stakeholders) that offer job shadowing, tours, and in-kind donations. The external panel, most of whom were potential employers, expressed significant interest in the development of this program including offers to advise on curriculum, participate on PAC, provide co-op or field placement, teach part-time or be a guest speaker, provide a tour, and interestingly, two panel members offered to provide a scholarship or award and two offered to donate equipment, materials or funds. This response from the community panel supports the need for and interest in this program development.

Our existing facility will be utilized in a more efficient manner due to increased usage. Materials ordered for our existing plumbing courses will create operating efficiencies through bulk purchasing.

4.4 Pathways to and from Proposed Program and Programs

Graduates would be job-ready after receiving foundational skills for the plumbing sector at the introductory level and could enter the workforce, pursue an apprenticeship, or continue with further educational opportunities.

4.5 Support for the College's enrolment growth strategy

As a program within the Donald J. Smith School of Building Technology, this program will be a part of Fanshawe's area of **institutional strength** as identified in the Strategic Mandate Agreement – Building Technologies.

In addition, this program will provide opportunities for direct entry students, re-skilling and skill upgrading for non-direct learners, and will be an additional program available to international students. It will serve to invite students to test their ability, talent and interest in the plumbing field, and help them determine the best fit for their career, lending support to the retention of students. As a result, the program enhances the likelihood of success, **preparing the student for their desired career goal**.

The Plumbing Techniques program will also contribute to the College's strategic goals through an increase in enrolment.

In addition, this program has been deliberately created in collaboration with relevant local employers to ensure success for students upon their graduation. Students will have access to faculty and community partners with expertise in the plumbing field, exposure to a variety of plumbing skills in the exceptional state-of-the-art labs that presently exist at Fanshawe, support and coaching on site, a solid program design, and all of the student-focused services offered by Fanshawe College; they will experience a **premiere learning experience.**

5.0 Demand for Program

5.1 Student Demand

a) Student populations most likely to be attracted to the program are:

Persona Groups

☒ Direct

☒ Non-direct

☐ International

☐ Other (identify):

The demand for this program at George Brown, Georgian, Humber and St. Clair is very strong from students within their respective catchment areas of each college, with very few students applying for programs outside their home catchment area, which suggests there will be strong demand for this program here in London, Ontario. Similar patterns of enrollment are seen in Fanshawe's Construction Carpentry Techniques and the Electrical Techniques programs and similar preparatory skills based programs within the province.

In 2014 there were 139 applications to St. Clair College's Plumbing Techniques program, and of those 105 (76%) were from the St. Clair catchment area.

In order for a student to become an apprentice, they must first be hired by a sponsoring employer. This program will enhance the likelihood of a student being accepted into the Plumbing Apprenticeship program by providing a pathway opportunity and ultimately a chance to pursue employment within the plumbing industry. This program will create the opportunity to be employable within the sector.

It is not anticipated that the offering of this program will negatively impact any other programs offered at Fanshawe.

5.2 Labour Market Demand

a) Provide evidence to validate employment demand from some or all of the following:

1. Trend data (employment trends for related employment)
2. Feedback from and support of the Program Advisory Committee
3. Feedback from external stakeholders
4. Other data sources (e.g., London Economic Development Corporation)
5. Letters of employer support (attached as appendix)

Labour market demand for this program indicates that there will continue to be job opportunities in the London area until 2021. Additional job opportunities will be available in Toronto and Hamilton at a similar rate during the same time period.

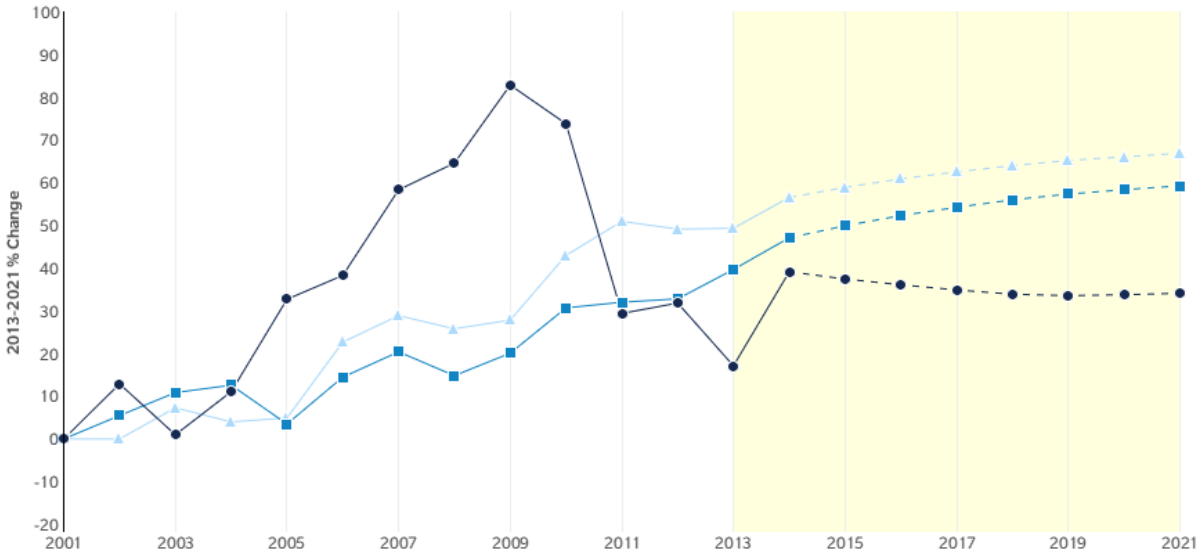

Table 1. Net projected regional percentage job change (2013-2021)

Region	2013 Jobs	2021 Jobs	Change	% Change
London	647	741	94	15%
Ontario	16,418	18,719	2,301	14%
Canada	47,552	53,134	5,582	12%

Table 2. CMA-level percentage change in jobs (2013-2021)

Census Metropolitan Aggregate Name	2013 Jobs	2021 Jobs	2013 - 2021 Change	2013 - 2021 % Change	2013 Location Quotient	2021 Location Quotient
Hamilton	646	1,158	512	79%	0.70	1.12
Brantford	101	176	75	74%	0.60	0.92
Norfolk	48	74	26	54%	0.75	1.05
London	647	741	94	15%	0.95	0.98
Ingersoll	25	28	3	12%	0.95	1.03
Woodstock	58	64	6	10%	0.86	0.86
Toronto	7,517	8,287	770	10%	0.88	0.87
Guelph	187	204	17	9%	0.75	0.71
Sarnia	122	131	9	7%	0.97	0.97
Centre Wellington	30	32	2	7%	1.00	0.92
Kitchener - Cambridge - Waterloo	936	979	43	5%	1.26	1.18
Tillsonburg	19	19	0	0%	0.78	0.73
Chatham-Kent	96	96	0	0%	0.75	0.71
Windsor	276	275	(1)	(0%)	0.72	0.67
Stratford	87	84	(3)	(3%)	1.41	1.24

The table above represents expected growth within the sector. The census shows that within a conservative range from London of 150 km's, the encompassing area will match the growth of Toronto's change from 2013-2021 of 770 additional jobs. Increases of 79% in Hamilton, 74% in Brantford and 15% increase in London will have a significant impact on the need for qualified plumbers within Southwestern Ontario.

As stated previously, external partnerships will include local companies (external panel stakeholders) that offer job shadowing, tours, and in-kind donations. The external panel, most of whom were potential employers, expressed significant interest in the development of this program including offers to advise on curriculum, participate on PAC, provide co-op or field placement, teach part-time or be a guest speaker, provide a tour, and interestingly, 2 panel members offered to provide a scholarship or award and 2 offered to donate equipment, materials or funds. This response from the community panel supports the need for and interest in this program development.

6.0 Feasibility of Program

6.1 Multi-Year Enrolment Projections (headcount)

Consultation: Registrar's Office

	2016/17	2017/18	2018/19	2019/20	Ongoing
Year One		24	36	48	48
Year Two					
Year Three					
Year Four					
Number of Graduates		18	27	36	36
Total Enrolment		24	36	48	48

6.2 Human Resources

a) Include staffing plan for program, up to and including full implementation.

1. Estimate the staffing requirements that are above the existing HR complement.
2. Would there be any changes to current staffing arrangements in order to implement this new program?
3. Would there be any additional training needs?

Consultation: Human Resources, OD&L, other Schools

b) Student Services

1. What other Learner / Student Success Services are required?

Consultation: Student Success

The program would need one new FT faculty position and a new one-step coordinator position. The balance of the teaching hours will be provided by NFT faculty.

Students in the program will have access to the Student Success Advisor associated within the Faculty of Technology.

6.3 Ministry Funding

Consultation: CAE

→ See ***Appendix F: Program Delivery Information (PDI) Form to Calculate Program Funding Parameters.***

6.4 Tuition Fees

Consultation: Registrar's Office, Financial Planning, CAE

Approved Postsecondary (APS) Program MTCU Table

- **Wt** - Program Weight for funding purposes: 1.20
- **FU -** Program Funding Units for funding purposes: 0.90
- Proposed annual tuition fee: $2,849.30 plus $1,215.40 ancillary fees ($4,064.70)
- Fees: Regular Yes __X___ No _____

  High Demand Yes _____ No __X___
- What tuition and ancillary fees are being charged by other colleges for similar programs?

**Please see the chart in 4.2 showing the list of other similar college offerings and their respective tuition fees. Note that some are for two terms and may include ancillary fees that are not identified. A search of the College websites was not successful in establishing the distinctions between tuition and ancillary, nor did they disclose the specifics of the ancillary fees. Our tuition fees and ancillary fees appear to be similar to those of other colleges except George Brown which is substantially and inexplicably higher.

6.5 Program Resources

a) **Capital requirements**

1. Specify the capital requirements required for startup of all levels.
2. Estimate the capital requirements for ongoing delivery of the program (up to the 5th year).
3. Specify the amount of capital investment required to implement this program that is beyond your existing capital allotment. If this exceeds $1.5 Million, also the source of these funds.
4. Specify the type of equipment and infrastructure enhancements needed to operationalize delivery of the program (electrical upgrade, water, eye wash station, fume hood, etc.).
5. Identify special lab amenities/attributes (functional requirements noted in 6.5 a) that impact 6.5 b)).

Consultation: Faculty, Chair, Program/Ops Manager, HS&S, Facilities Management

The Program will use the existing plumbing lab and equipment in T1023. No additional capital monies will be required to introduce this program and no infrastructure enhancements anticipated.

Consultation: Shawn Harrington, Senior Manager, Campus Planning and Capital Development

b) **Space requirements**

See ***Appendix G: Detailed Course Delivery***

1. Will this program require renovations to existing space? If yes, describe.
2. Will this program require additional space? If yes, describe.
3. Will this program require designated space? If yes, describe.
4. Specify the size, type and attributes of classrooms and/or dedicated labs.

Consultation: Facilities Management, Timetabling/Scheduling

This program will provide better space utilization of the existing plumbing lab, however additional classroom space will be required for theory courses within the program.

The plumbing students use half of T1023 while the other half is used as an electrical wiring lab. Currently, the plumbing side is used 52% of the time in Fall and 47% in Winter. We strive for 60% usage, so these hours will fit nicely into the shop.

The welding shop is over 100% utilized. Lisa Dennis explained that the shop is used from 7:00 am to 10:00 in the evening on weekdays.

Finding welding space will require some creativity to accommodate the plumbing techniques students. Options to investigate include proposing a trade of hours with the Continuing Education welding class that has 8 hours in the welding shop weekly from 6-10 on Mondays and Wednesdays. This and other options are being explored.

Consultation: Lisa Dennis, Coordinator, Academic Support, Academic Excellence and Innovation

c) **Computing requirements**

1. Identify any computers or related hardware devices that are to be funded:

   ☐ Desktop Computer ☐ Laptop ☐ Notebook ☐ Tablet

   ☐ PC based ☐ MAC ☐ IOS ☐ Android ☐ Other:
2. Identify any connectivity requirements that are to be funded:

   ☐ Permanent Hardwire ☐ Pluggable e.g. Laptop ☐ Wireless

   ☐ Other:
3. Identify any data storage requirements that are to be funded (excluding FOL):

   ☐ Local Hard Drive ☐ Area Server ☐ Central Server ☐ Cloud

   ☐ Other:
4. Identify any software requirements and version:

   ☐ Office Professional Plus ☐ Office Project Professional

   ☐ Office Proof ☐ English ☐ French ☐ Spanish

   ☐ Office Publisher ☐ Office Visio

   ☐ Silverlight

   ☐ Other:
5. Estimate the computing requirements required for startup of all levels.
6. Estimate the computing requirements for ongoing delivery of the program (up to the 5th year).
7. What are the implications for existing IT architecture given program size, delivery format and computing requirements?
8. Does existing IT infrastructure allow this program to be offered as proposed? If no, what is required?
9. What are the software licensing fees (one time and annual)?
10. Is there a requirement to purchase enabling technologies (clickers, SMART Boards, etc.)? If yes, describe.
11. Can the proposed hardware and software run on the College's networks? If no, describe what is required.
12. What are the online registration, e-learning and FOL requirements?
13. Are there specific IT staff support needs for the program? If yes, describe.

Consultation: Information Technology Services

This proposed program has no additional hardware connectivity, data storage or software requirements that require funding. There are no additional costs associated with startup and ongoing computing requirements for the program, as required hardware and software are already running on the College's existing networks.

Consultation: Brody Lavoie, Manager Academic Services, IT

d) **Learning Resources -** Include collections and/or online resources required.
Consultation: Library

The current learning resources provided by Library and Media Services are sufficient for the demands of this program.

e) **Marketing Plan**
Consultation: Reputation and Brand Management

Via email from Courtney Ecker November 3, 2015:

a. Direct Mail:
- Main College Viewbook - highlighting all programs and distributed to local catchment and key markets domestically.

b. Advertising:
- Google AdWords Program Campaign (all Fanshawe programs) - search, display and remarketing for domestic only (max budget $2.00-6.00/day/program).

c. Recruitment (not program specific):
- University/College Recruitment Visits – targeting feeder schools in Ontario.
- Fanshawe Recruitment Presentations & High School Fairs – targeting feeder schools in Ontario
- Fanshawe On-Campus Recruitment Events - CIP, Fall Open House, Pathways Fair, Spring Open House, and Daily Campus Tours

d. Guidance Counselling Mailing
- Once a year, we send a mailing to guidance counsellors letting know about the new programs we offer.

e. Industry Specific Events
- London Homebuilders Association Annual Career Showcase

Consultation: Fred Varkaris,Chair, School of Building Technology; Courtney Ecker, Marketing Officer

6.6 Budget for Program - (multi-year)

a) Quantify any estimated spending requirements that are above your existing budget.

b) Outline any budgetary assumptions.

c) What was the outcome of your funding calculation?

Consultation: Financial Planning

See ***Appendix H: Multi-Year Budget Projections with Net Present Value (NPV).***

The Net Present Value (NPV) at 8% for the program is $791,317

The budget for the program, including all assumptions made in the calculation is presented in Appendix H

Key Assumptions include:

- Grant based on existing PRT1 program
- Tuition based on standard program for 2016/17
- 100%/0% domestic/international enrolments assumed
- Based on level 1 enrolment of 24
- No program specific fee
- No increase on annual operating (capital) expenses
- 1 new FTE added in year 2 (Fall 2018)
- Other startup costs for marketing, curriculum development, fitup/equipment estimated at $39,000

Consultation: Terry Dobson, Budget Coordinator, Resource Planning; Kerry Osborne, Operations Manager, Faculty of Technology

6.7 Alternative Sources of Funding

a) Are there alternative sources of funding for this program (*e.g.*, donations, repurposing, partnerships)?

Consultation: Advancement and Alumni Office

Current Plumbing Apprentice program receives donations from the following industry partners:

-Great Lakes Copper
-Watts Technologies
-Princess Auto
-Milwaukee Tools
-Aitchison Plumbing

We would look to approach the above industry partners to expand their reach and support of this program.

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

SUITE 1600, 20 BAY STREET,
TORONTO M5J 2N8

PROGRAM VALIDATION DECISION

We have completed our validation of your application for the **Plumbing Techniques** program submitted to us on **November 27th, 2015** and leading to the conferring of an **Ontario College Certificate.**

Please accept this as our validation of your proposal. As a signal of our validation decision, we have assigned the following Approved Program Sequence (APS) number to your program: **FANS 01328**.

A copy of this validation decision is being sent to **Colleges Unit, MTCU** for their information and records.

However, in keeping with the **Colleges Unit, MTCU** process for college program funding approvals, we have not sent your documents to the Ministry. Please be advised that you need to submit the documentation directly to the Ministry to complete the approval for funding request, if applicable.

The required documents for the Ministry's funding approval decision are the Board Attestation form, signed by your college president, the Program Delivery Information (PDI) form, and the completed Application for Program Validation form (CVS).

The Ministry will reply separately to your request for funding approval of your program.

Sincerely,

Karen Belfer
December 2nd, 2015

Ontario College Quality Assurance Service
Service de l'assurance de la qualité des collèges de l'Ontario

APPLICATION FORM FOR PROGRAM PROPOSAL

A. Funding Request: This proposal will be sent to the MTCU for Approval for Funding.
☒Yes
☐No

B. College Name: Fanshawe College

C. College Contact(s): Person responsible for this proposal.

Name: Tracy Gedies
Title: Director, Centre for Academic Excellence
Telephone: 519-452-4430 x4733
E-mail: TGedies@fanshawec.ca

Name: Fred Varkaris
Title: Chair, Donald J. Smith School of Building Technology
Telephone: 519-452-4430 x4005
E-mail: FVarkaris@fanshawec.ca

D. Proposed Program Title: Plumbing Techniques

E. Proposed Credential: Please select one (1).
☐Local Board Approved Certificate
☒Ontario College Certificate
☐Ontario College Diploma
☐Ontario College Advanced Diploma
☐Ontario College Graduate Certificate

F. Program Maps (Appendix A): Please complete and attach the two (2) Program Maps.
Form 1- Vocational Program Learning Outcomes
Form 2- Essential Employability Skills Outcomes

G. Program Description (Appendix B): Please complete and attach the Program Description Form.

H. Program Curriculum (Appendix C): Please complete and attach the Program Curriculum Form.

I. Regulatory Status Form (Appendix D): Please complete and attach the Regulatory Status Form.

J. Date of Submission to CVS: November 27, 2015

FOR CVS USE ONLY

K. Date of CVS Response: December 2, 2015

L. CVS Validation Decision:
☒Proposal Validated. APS Number: FANS 01328
Reason: Well-developed program; aligned to the MTCU code for this field and credential.
☐Proposal not Validated.
Reason:

M. CVS Signature: Karen Belfer

Send the completed form and required appendices to: belfer@ocqas.org. For detailed information on how to complete the *Application Form for Program Proposal*, please refer to the *Instructions for Submission of Program Proposal* document at www.ocqas.org.

INTRODUCTION

The process established by the Credentials Validation Service (CVS) is designed to be a streamlined, seamless, effective, and efficient process that will allow colleges to submit and receive validation requests and decisions in a timely manner. The document with the instructions to complete this form (*CVS Instructions for Submission of Program Proposal*) is available to all colleges on the OCQAS website (www.ocqas.org).

F. PROGRAM MAPS (APPENDIX A): Form 1 - Vocational Program Learning Outcomes

Provincial Vocational Program Outcomes ☐ Provincial Program Standard, *or* ☒ Provincial Program Description *MTCU code*: 41010	**Proposed Program Vocational Learning Outcomes**	**Course Title / Course Code**
1. Work according to contractual obligations; the project manual; and applicable laws, standards, bylaws, and codes.	1. Work according to contractual obligations; the project manual; applicable laws, standards, bylaws, and codes.	PLUM-1XXX INTRO TO PLUMBING THEORY 1 DRAF-1XXX TRADE DOCUMENTATION 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2 SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY PLUM-2XX3 PLUMBING THEORY 2 DRAF-2XXX TRADE DOCUMENTATION 2
2. Perform residential plumbing projects effectively and accurately by interpreting and producing basic data in graphic, oral and written formats.	2. Execute plumbing projects effectively and accurately by interpreting graphics, drawings and written documentation.	PLUM-1XXX INTRO TO PLUMBING THEORY 1 DRAF-1XXX TRADE DOCUMENTATION 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2 MATH-1XXX TRADE CALCULATIONS 1 SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY PLUM-2XX3 PLUMBING THEORY 2 DRAF-2XXX TRADE DOCUMENTATION 2 MATH-2XXX TRADE CALCULATIONS 2 COMP-2XXX COMPUTER APPLICATIONS

3. Work responsibly and effectively with others and in accordance with appropriate practices, procedures and in compliance with health and safety legislation.	3. Work responsibly and effectively with others and in accordance with appropriate practices, procedures and in compliance with health and safety legislation.	PLUM-1XXX INTRO TO PLUMBING THEORY 1 DRAF-1XXX TRADE DOCUMENTATION 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2 MATH-1XXX TRADE CALCULATIONS 1 WELD-1XXX INTRO TO WELDING SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY DRAF-2XXX TRADE DOCUMENTATION 2 MATH-2XXX TRADE CALCULATIONS 2
4. Use tools and equipment for basic installation manufacture, and repair of components to required specifications.	4. Use tools and equipment for basic installation manufacture, and repair of components to required specifications.	PLUM-1XXX INTRO TO PLUMBING THEORY 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2 MATH-1XXX TRADE CALCULATIONS 1 SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY WELD-1XXX INTRO TO WELDING PLUM-2XX3 PLUMBING THEORY 2 MATH-2XXX TRADE CALCULATIONS 2 COMP-2XXX COMPUTER APPLICATIONS
5. Contribute to the organizing and planning of residential plumbing installation projects.	5. Contribute to the organizing and planning of plumbing installation projects.	PLUM-1XXX INTRO TO PLUMBING THEORY 1 DRAF-1XXX TRADE DOCUMENTATION 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2

		MATH-1XXX TRADE CALCULATIONS 1 SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY PLUM-2XX3 PLUMBING THEORY 2 DRAF-2XXX TRADE DOCUMENTATION 2 MATH-2XXX TRADE CALCULATIONS 2 COMP-2XXX COMPUTER APPLICATIONS
6. Solve routine problems related to work environments using a variety of systemic approaches.	6. Solve routine plumbing issues using a variety of problem solving approaches.	PLUM-1XXX INTRO TO PLUMBING THEORY 1 DRAF-1XXX TRADE DOCUMENTATION 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2 SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY PLUM-2XX3 PLUMBING THEORY 2 DRAF-2XXX TRADE DOCUMENTATION 2 COMM-2XXX COMMUNICATIONS COMP-2XXX COMPUTER APPLICATIONS

Add additional rows as required to complete the mapping exercise.

F. PROGRAM MAPS (APPENDIX A): Form 2 – Essential Employability Skills Outcomes

Skill Categories	**Defining Skills** Skill areas to be demonstrated by the graduates	**Essential Employability Skills Outcomes** The graduate has reliably demonstrated the ability to:	**Course Title / Course Codes** (*As indicated in Appendix A*)
Communication	• Reading • Writing • Speaking • Listening • Presenting • Visual Literacy	• communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience	PLUM-1XXX INTRO TO PLUMBING THEORY 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX3 PLUMBING THEORY 2 PLUM-2XX4 TOOLS AND PIPING METHODS 2 DRAF-2XXX TRADE DOCUMENTATION 2 COMM-2XXX COMMUNICATIONS
		• respond to written, spoken, or visual messages in a manner that ensures effective communication	PLUM-1XXX INTRO TO PLUMBING THEORY 1 PLUM-1XX2 TOOLS AND PIPING METHODS 1 DRAF-1XXX TRADE DOCUMENTATION 1 MATH-1XXX TRADE CALCULATIONS 1 SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY PLUM-2XX4 TOOLS AND PIPING

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Codes (*As indicated in Appendix A*)
			METHODS 2 MATH-2XXX TRADE CALCULATIONS 2 COMP-2XXX COMPUTER APPLICATIONS
Numeracy	• Understanding and applying mathematical concepts and reasoning • Analysing and using numerical data • Conceptualizing	• execute mathematical operations accurately	MATH-1XXX TRADE CALCULATIONS 1 MATH-2XXX TRADE CALCULATIONS 2 COMP-2XXX COMPUTER APPLICATIONS
Critical Thinking & Problem Solving	• Analysing • Synthesizing • Evaluating • Decision-making • Creative and innovative thinking	• apply a systematic approach to solve problems	PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX3 PLUMBING THEORY 2
		• use a variety of thinking skills to anticipate and solve problems	PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX3 PLUMBING THEORY 2 PLUM-2XX4 TOOLS AND PIPING METHODS 2
Information Management	• Gathering and managing information	• locate, select, organize, and document information using appropriate technology and	PLUM-1XXX INTRO TO PLUMBING THEORY 1

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Codes (*As indicated in Appendix A*)
	• Selecting and using appropriate tools and technology for a task or a project • Computer literacy • Internet skills	information systems	PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX3 PLUMBING THEORY 2 COMM-2XXX COMMUNICATIONS COMP-2XXX COMPUTER APPLICATIONS
		• analyse, evaluate, and apply relevant information from a variety of sources	PLUM-1XXX INTRO TO PLUMBING THEORY 1 DRAF-1XXX TRADE DOCUMENTATION 1 DRAF-2XXX TRADE DOCUMENTATION 2 COMP-2XXX COMPUTER APPLICATIONS
Inter-personal	• Team work • Relationship management • Conflict resolution • Leadership • Networking	• show respect for the diverse opinions, values, belief systems, and contributions of others	PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2 COMM-2XXX COMMUNICATIONS
		• interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals	PLUM-1XX2 TOOLS AND PIPING METHODS 1 COMM-2XXX COMMUNICATIONS
Personal	• Managing self	• manage the use of time and other resources to complete projects	PLUM-1XXX INTRO TO PLUMBING THEORY 1

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Codes (*As indicated in Appendix A*)
	• Managing change and being flexible and adaptable • Engaging in reflective practice • Demonstrating personal responsibility		PLUM-1XX2 TOOLS AND PIPING METHODS 1 DRAF-1XXX TRADE DOCUMENTATION 1 WELD-1XXX INTRO TO WELDING SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY PLUM-2XX4 TOOLS AND PIPING METHODS 2
		• take responsibility for one's own actions, decisions, and consequences	PLUM-1XX2 TOOLS AND PIPING METHODS 1 PLUM-2XX4 TOOLS AND PIPING METHODS 2

G. PROGRAM DESCRIPTION (APPENDIX B)

Program Description

Provide a brief description of the program, similar to what might be used as, or found in, advertising or a calendar description.

THE PLUMBING TECHNIQUES PROGRAM IS A ONE-YEAR ONTARIO COLLEGE CERTIFICATE, DESIGNED TO GIVE THE STUDENT AN UNDERSTANDING OF THE THEORETICAL AND PRACTICAL ASPECTS OF THE PLUMBING TRADE AND TO FAMILIARIZE THEM WITH THE ASSOCIATED TOOLS AND MATERIALS. THE PROGRAM ALSO PROVIDES THE STUDENT WITH A SOLID FOUNDATION AND PATHWAYS TO CONTINUE THEIR EDUCATION IN THE PLUMBING FIELD OR OTHER TRADE-RELATED CAREERS.

Laddering Opportunities

Provide a brief description of known laddering into and from the proposed program, e.g. certificate to diploma, diploma to degree, apprenticeship to college, diploma to apprenticeship, college to college, diploma to college degree, etc.

THE PROGRAM PROVIDES THE STUDENT WITH A SOLID FOUNDATION AND PATHWAYS TO CONTINUE THEIR EDUCATION IN THE PLUMBING FIELD OR OTHER TRADE-RELATED CAREERS.

Occupational Areas

Provide a brief description of where it is anticipated graduates will find employment. GRADUATES OF THE PLUMBING TECHNIQUES PROGRAM WILL FIND EMPLOYMENT IN THE PLUMBING RETAIL INDUSTRY AND MAY ALSO FIND AN APPRENTICESHIP IN THE PLUMBING TRADE OR OTHER RELATED TRADES.

Proposed Program Vocational Learning Outcomes

Provide the list of the proposed program vocational learning outcomes. These outcomes should be listed, verbatim as they appear in Appendix A- Form 1.

***The graduate has reliably demonstrated the ability to*:**

1. Work according to contractual obligations; the project manual; applicable laws, standards, bylaws, and codes.
2. Execute plumbing projects effectively and accurately by interpreting graphics, drawings and written documentation.
3. Work responsibly and effectively with others and in accordance with appropriate practices, procedures and in compliance with health and safety legislation.
4. Use tools and equipment for basic installation manufacture, and repair of components to required specifications.
5. Contribute to the organizing and planning of plumbing installation projects.
6. Solve routine plumbing issues using a variety of problem solving approaches.

Admission Requirements

Identify the Admission Requirements for the program.

- Ontario Secondary School diploma with the majority of senior level courses at the College level
- University or University/College levels, or an Ontario High School Equivalency Certificate
- GED or Mature Student Status

OR

- Ontario High School Equivalency Certificate – GED

H. PROGRAM CURRICULUM (APPENDIX C)

Semester	Course Code/ Course Title (*As indicated in Appendix A*)	General Education Course *(indicate with an X)*	Total Course Hours	Course Description
1	**PLUM-1XXX INTRO TO PLUMBING THEORY 1**		**75**	This course is a detailed study of common pipe and fittings used for plumbing installations. Terminology of design, manufacture and sizing as well as approved uses of different materials will be taught. Plumbing trade terminology which is used for different drainage systems will also be explained.
1	**PLUM-1XX2 TOOLS AND PIPING METHODS 1-(SHOP)**		**60**	In this "hands on" practical course, the student will be instructed on the safe and proper use of hand tools and power equipment. The student will be expected to use, care and maintain various tools necessary to perform a plumbing related task. Safety, rigging and hoisting are criteria required for apprentices in the plumbing trade in order to develop safety and awareness on a construction site. Skills learned from the other courses in the program will be demonstrated by the student by drawing, designing and assembling a simple residential drainage, waste and vent system or part of such system either alone or with a partner.
1	**DRAF-1XXX TRADE DOCUMENTATION 1**		**45**	This preliminary drafting and blueprint course is designed to give the student the ability to design simple trade related drawings acceptable to a tradesperson. The student will be expected to identify different drawings in a set of plans including Architectural, Mechanical, Electrical, and Structural plans as well as the Specifications and use them for

				material takeoff, layout and installation.
1	**MATH-1XXXX TRADE CALCULATIONS 1**		**45**	This course introduces the basic concepts involved in metric and imperial measurement as they apply to the construction trade. Students will calculate linear measurements, piping offsets related to the plumbing trade, and square roots. Students will also solve business applications of simple interest and compound interest problems
1	**WELD-1XXX INTRO TO WELDING**		**45**	An introductory course which provides theoretical and practical training for the student to flare, swage, braze, and solder copper piping, and to cut or weld (SMAW) plate and angle steel in a safe manner.
1	**SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY**		**30**	Students will learn about safe working habits and procedures in accordance with applicable safety standards and regulations in the construction industry, with particular attention to personal protective equipment, tools, working at heights, in trenches and confined spaces. Students will become aware of relevant sections of the Occupational Health and Safety Act (OHSA) and Workplace Hazardous materials Information System (WHMIS) standards.
2	**PLUM-2XX3 PLUMBING THEORY 2**		**75**	Review of Theory 1, highlighting the critical concepts and their applications. Trade terminology for different drainage systems will be explained and why only one is permitted today by code. Floor drains, funnel floor drains, priming methods and venting exceptions are discussed. Various plumbing traps and types, sizing, trap seal loss and fixture outlet pipes are explained. Sizing the drainage system and grading or sloping according to code will be shown. Venting of the drainage system according to acceptable practice and code will be discussed and demonstrated in this course. Types of individual vents, branch vents with pertinent rules and sizes are stressed. Group vents, dual vents, wet vents, and circuit vents are explained in depth. Roof flashings and vent terminals are discussed at length

2	**PLUM-2XX4 TOOLS AND PIPING METHODS 2 – (SHOP)**		**60**	This "hands on" course continues from Plumbing Theory I and prepares the student to make quality joints as required for shop projects. By practicing the techniques taught the student will be able to safely transport, set up and use Oxy-acetylene torches, "B" tanks, Propane or Butane torches. Joint preparation, purpose of flux, proper tip use and heat will be shown. Cutting mild steel using a torch as well as soldering copper using both hard and soft solders will be demonstrated and practiced. Calculations for offsets of varying degrees, preparing and assembling of projects using skills learned from the other courses in the program will be demonstrated. Skills are required for the rigging of loads in order to move or hoist materials, equipment or tools in a safe and professional manner according to the O.H.S.A. and C.S.A.O. Skills learned from the other courses in the program will again be demonstrated by the student by drawing, designing and assembling a simple residential drainage, waste and vent system or part of such system either alone or with a partner.
2	**DRAF-2XXX TRADE DOCUMENTATION 2**		**45**	In this course, the student will learn the use of the Ontario Plumbing Code and the basics of blueprint reading. A study of the relationships involving owner, architect, builder and tradesperson is also included. This course will introduce the student to isometric drawings to scale and reinforce the ability to produce orthographic drawings and read and interpret drainage waste and vent construction trade drawings and job specifications.
2	**MATH-2XXX TRADE CALCULATIONS 2**		**45**	The calculation of perimeter, area, and volume as it relates to the capacity of pipes, cylinders and tanks in both Metric and Imperial measurements, and how these calculations may be used to determine load weights for hoisting operations. The students will also calculate ratio and proportional with percentage, using both fractions and decimals. Students will also

				perform BTU calculations
2	**COMM-2XXX COMMUNICATIONS**		**30**	Technical communication focuses on practical writing situations, such as manuals, instructions, and internal company communications. This hands-on course will give the student an opportunity to practice reading and writing with a purpose. Throughout the course there will be several applications that will provide the students with realistic situations as they apply to their field.
2	**COMP-2XXX COMPUTER APPLICATIONS**		**45**	The student is introduced to the basics of computer operating systems and file management. The student will gain practical knowledge of various software applications such as: Word, Excel.

Add additional rows as required to complete the curriculum chart.

I. REGULATORY STATUS FORM (APPENDIX D)

Please complete the following:

There IS a legislative requirement that program graduates must be certified or licensed by a regulatory authority to practice or work in the occupation

☐ **Mandatory recognition of a regulatory authority exists and is being sought.**
(Please refer to Section A below- *Mandatory Regulatory Requirements*)

There IS or IS NOT a voluntary (i.e., not required by legislation) licensing or certification for entry to practice in the profession or trade.

☐ YES
☒ NO

☐ **Voluntary recognition of a regulatory authority IS being sought.**
(Please refer to Section B below- *Recognition by Voluntary Association*)

☒ **Voluntary recognition is NOT being sought***.
Please explain why: There are no applicable regulatory bodies for plumbing at the "techniques" level.

*Note: *There may be titling implications for programs that are not seeking recognition in an area where existing programs have secured recognition.*

A. MANDATORY REGULATORY REQUIREMENTS

Where licensing or certification is ***required by legislation*** for entry to practice in the profession or trade, the Ministry of Training, Colleges and Universities requires that colleges ensure that their programs will meet the requirements of the regulatory body in order to be approved for funding.

Name of regulatory authority:

Status (please select ALL that apply)

☐ Accreditation or approval by the regulatory authority / designated third party received.
Date of recognition:

☐ The college is working toward accreditation with the regulatory authority/ designated third party.
Describe current status of application:
Expected date of recognition:

☐ The regulatory authority does not accredit educational programs directly or through designated third party. Formal acknowledgement (e.g. in its published or legislated registration requirements) that the program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Please submit an acknowledgement and/or evidence from the regulatory authority regarding the status of the recognition.

B. RECOGNITION BY VOLUNTARY ASSOCIATION

Colleges may choose to have a program accredited or recognized by a voluntary membership organization or association. Graduate eligibility for association recognition or adherence to standards imposed by the body is ***a recommendation and not a requirement*** for program funding approval by the Ministry of Training, Colleges and Universities.

Name of voluntary association:

Status (please select ALL that apply)

☐ The college is working toward recognition.
Describe current status of application:
Expected date of recognition:

☐ Recognition has been received.
Date of recognition:
Type of recognition (e.g. accreditation, graduates eligible to write membership exams, etc.):

☐ The association does not recognize educational programs directly or through designated third party. Formal recognition (e.g. in its published requirements) that the program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Please submit an acknowledgement and/or evidence from the regulatory authority or voluntary association regarding the status of the recognition.

PROGRAM MAPPING (Plumbing Techniques)

PROGRAM VOCATIONAL LEARNING OUTCOMES **1** - Introductory **2** - Intermediate **3** - Advanced **The graduate has reliably demonstrated the ability to: (Source: MTCU Code)**	LEVEL ONE						LEVEL TWO						
	PLUM-1XXX INTRO TO PLUMBING THEORY 1	PLUM-1XX2 TOOLS AND PIPING METHODS 1	DRAF-1XXX TRADE DOCUMENTATION 1	MATH-1XXX TRADE CALCULATIONS 1	WELD-1XXX INTRO TO WELDING	SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY	PLUM-2XX3 PLUMBING THEORY 2	PLUM-2XX4 TOOLS AND PIPING METHODS 2	DRAF-2XXX TRADE DOCUMENTATION 2	MATH-2XXX TRADE CALCULATIONS 2	COMM-2XXX COMMUNICATIONS	COMP-2XXX COMPUTER APPLICATIONS	**# OF COURSES EVALUATING THE OUTCOME**
1. Work according to contractual obligations; the project manual; applicable laws, standards, bylaws, and codes.	x	x	x			x	x	x	x				7
2. Execute plumbing projects effectively and accurately by interpreting graphics, drawings and written documentation.	x	x	x	x		x	x	x	x	x		x	10
3. Work responsibly and effectively with others and in accordance with approriate practices, procedures and in compliance with health and safety legislation.	x	x	x	x	x	x		x	x	x			9
4. Use tools and equipment for basic installation manufacture, and repair of components to required specifications.	x	x		x	x	x	x	x		x		x	9
5. Contribute to the organizing and planning of plumbing installation projects.	x	x	x	x		x	x	x	x	x		x	10
6. Solve routine plumbing issues using a variety of problem solving approaches.	x	x	x			x	x	x	x		x	x	9
TOTAL # OF OUTCOMES EVALUATED BY EACH COURSE	**6**	**6**	**5**	**4**	**2**	**6**	**5**	**6**	**5**	**4**	**1**	**4**	**54**
V = Vocational Courses E = Essential Employability Skills Courses													
GM = General Education (mandatory) G = General Education (elective)													

NB - Only indicate the outcomes that are Taught & Evaluated (TE or TRE) in a course

PROGRAM COORDINATOR: Greg Van Bakel

ACADEMIC CHAIR: Fred Varkaris

Date Completed: November 19, 2015

Analysis of Mapping Results:

PROGRAM MAPPING (Plumbing Techniques)

PROGRAM ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES 4 = R 5 = RE 6 = TE 7 = TRE T = Taught R = Reinforced E = Evaluated **The graduate has reliably demonstrated the ability to: (Source: MTCU Code)**	LEVEL ONE						LEVEL TWO						
	PLUM-1XXX INTRO TO PLUMBING THEORY 1	PLUM-1XX2 TOOLS AND PIPING METHODS 1	DRAF-1XXX TRADE DOCUMENTATION 1	MATH-1XXX TRADE CALCULATIONS 1	WELD-1XXX INTRO TO WELDING	SFTY-1XXX CONSTRUCTION HEALTH AND SAFETY	PLUM-2XX3 PLUMBING THEORY 2	PLUM-2XX4 TOOLS AND PIPING METHODS 2	DRAF-2XXX TRADE DOCUMENTATION 2	MATH-2XXX TRADE CALCULATIONS 2	COMM-2XXX COMMUNICATIONS	COMP-2XXX COMPUTER APPLICATIONS	**# OF COURSES SUPPORTING THE OUTCOME**
1. communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.	x	x					x	x	x		x		6
2. respond to written, spoken, or visual messages in a manner that ensures effective communication.	x	x	x	x		x		x		x		x	8
3. execute mathematical operations accurately.				x						x		x	3
4. apply a systematic approach to solve problems.		x					x						2
5. use a variety of thinking skills to anticipate and solve problems.		x					x	x					3
6. locate, select, organize, and document information using appropriate technology and information systems.	x	x					x				x	x	5
7. analyze, evaluate, and apply relevant information from a variety of sources.	x		x						x			x	4
8. show respect for the diverse opinions, values, belief systems, and contributions of others.		x						x			x		3
9. interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.		x									x		2
10. manage the use of time and other resources to complete projects.	x	x	x		x	x		x					6
11. take responsibility for one's own actions, decisions, and consequences.		x						x					2
TOTAL # OF OUTCOMES SUPPORTED BY EACH COURSE	**5**	**9**	**3**	**2**	**1**	**2**	**4**	**6**	**2**	**2**	**4**	**4**	**44**

PROGRAM COORDINATOR: Greg Van Bakel

ACADEMIC CHAIR: Fred Varkaris

Date Completed: November 19, 2015

Analysis of Mapping Results:

APPENDIX F

Program Delivery Information (PDI) Form to Calculate Program Funding Parameters
Total Hours Required per Student

College: Fanshawe College Program title: Plumbing Techniques

Indicate the number of hours that a student is required to spend in each instructional setting in each semester or level of this program. All hours in all instructional settings are to be noted.

Funded Instructional Settings*	**Semester/Level**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Classroom instruction	**195**	**240**								**435**
Laboratory/workshop/ fieldwork	**105**	**60**								**165**
Independent (self-paced) learning										
One-on-one instruction										
Clinical placement										
Field placement/work placement										
Small group tutorial										
TOTAL	**300**	**300**								**600**

Non-funded Instructional Settings*	**Semester/Level**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Co-op work placement - Mandatory										
Co-op work placement - Optional										
TOTAL										

*Definitions for each instructional setting can be found below.

Appendix G: Detailed Course Delivery

Program: Plumbing Techniques **Term: Fall**
School: Fanshawe College **Starting Year: 2017**

Course Code	Course Name	Hours	Weeks / Term	Course Status	No. of Sections	Proposed Section Size	Course Delivery Space (hours distribution per week)						Additional Comments
							Classroom	Laboratory	Dedicated Space	Computer Room	Other (describe)	None	
Level 1													
PLUM-1XXX	INTRO TO PLUMBING THEORY 1	75	15		1	24	5	0					
PLUM-1XX2	TOOLS AND PIPING METHODS 1	60	15		1	24		4					
DRAF-1XXX	TRADE DOCUMENTATION 1	45	15		1	24	3						
MATH-1XXX	TRADE CALCULATIONS 1	45	15		1	24	3						
WELD-1XXX	INTRO TO WELDING	45	15		1	24		3					
SFTY-1XXX	CONSTRUCTION HEALTH AND SAFETY	30	15		1	24	2						
Level 2													
PLUM-2XX3	PLUMBING THEORY 2	75	15		1	24	5						
PLUM-2XX4	TOOLS AND PIPING METHODS 2	60	15		1	24		4					
DRAF-2XXX	TRADE DOCUMENTATION 2	45	15		1	24	3						
MATH-2XXX	TRADE CALCULATIONS 2	45	15		1	24	3						
COMM-2XXX	COMMUNICATIONS	30	15		1	24	2						
COMP-2XXX	COMPUTER APPLICATIONS	45	15		1	24				3			

Program Name: Plumbing Techniques
Program type: Ontario College Certificate

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Incremental revenues												
Grants:	Notes											
- program name	1	n/a	99,238	148,856	198,475	198,475	198,475	198,475	198,475	198,475	198,475	1,637,420
Tuition:												
- program name	2,3,4	59,835	89,753	119,671	119,671	119,671	119,671	119,671	119,671	119,671	119,671	1,106,953
Program Specific fee **	5	0	0	0	0	0	0	0	0	0	0	0
Other associated revenue		0	0	0	0	0	0	0	0	0	0	0
sub-total		59,835	188,991	268,527	318,146	318,146	318,146	318,146	318,146	318,146	318,146	2,744,373
Incremental expenses												
Indirect salaries:												
Admin/Support staff - coordinator		3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	35,000
Teaching salaries:												
Full time - number required		0	1	1	1	1	1	1	1	1	1	
- cost @	$130,389	0	130,389	130,389	130,389	130,389	130,389	130,389	130,389	130,389	130,389	1,173,501
Part time - hours per week req'd		20	6	6	6	6	6	6	6	6	6	
- cost @	see below	48,840	14,652	14,652	14,652	14,652	14,652	14,652	14,652	14,652	14,652	180,708
One time costs - facilities		0										0
fitup/equipment		5,000										5,000
Other startup - Marketing/Curric Dev.		33,000										33,000
Operating expenses		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000
Capital expenses		5,000										5,000
sub-total		96,340	149,541	149,541	149,541	149,541	149,541	149,541	149,541	149,541	149,541	1,442,209
incremental cash inflows		-36,505	39,450	118,986	168,605	168,605	168,605	168,605	168,605	168,605	168,605	1,302,164
	CTO%		21%	44%	53%	53%	53%	53%	53%	53%	53%	

Net present value @ 8% $791,317

Notes:
1. Grant based on existing PRT1 program
2. Tuition based on standard program for 16/17
3. 100%/0% domestic/international enrolments assumed

44. Based on lvl 1 enrolment total of 20

5. Based on estimate

INPUT FIELDS

Tuition - domestic (per term)	lvl 1/2		$1,424.65
	lvl 3/4		$0.00
Grant (per term)	all levels		$2,362.80
Program specific fee	all levels		$0.00
Tuition - international (per term)	lvl 1/2		$0.00
	lvl 3/4		$0.00
Enrolment split	domestic		100%
	international		0%
Part time / Partial load	split %	PT	60%
		PL	40%
	hrly rate	PT	$70.40
	(incl. ben's)	PL	$97.90
Number of weeks for PT/PL			30

YEAR 1

Enrolment table

Program name	Domestic	Int'l	
level 1 - Fall	24	0	24
level 2 - Winter	18	0	18
level 3	0	0	0
level 4	0	0	0
	42	0	42

Tuition rates

	Domestic	Int'l
level 1	1,424.65	0.00
level 2	1,424.65	0.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l

level 1	2,362.80	0.00
level 2	2,362.80	0.00
level 3	2,362.80	0.00
level 4	2,362.80	0.00

YEAR 2

Enrolment table — Program name

	Domestic	Int'l	
level 1 - Fall	36	0	36
level 2 - Winter	27	0	27
level 3	0	0	0
level 4	0	0	0
	63	0	63

Tuition rates

	Domestic	Int'l
level 1	1,424.65	0.00
level 2	1,424.65	0.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	2,362.80	0.00
level 2	2,362.80	0.00
level 3	2,362.80	0.00
level 4	2,362.80	0.00

YEAR 3

Enrolment table — Program name

	Domestic	Int'l	
level 1 - Fall	48	0	48
level 2 - Winter	36	0	36
level 3	0	0	0
level 4	0	0	0
	84	0	84

Tuition rates

	Domestic	Int'l
level 1	1,424.65	0.00
level 2	1,424.65	0.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	2,362.80	0.00
level 2	2,362.80	0.00
level 3	2,362.80	0.00
level 4	2,362.80	0.00

YEAR 4

Enrolment table — Program name

	Domestic	Int'l	
level 1 - Fall	48	0	48
level 2 - Winter	36	0	36
level 3	0	0	0
level 4	0	0	0
	84	0	84

Tuition rates

	Domestic	Int'l
level 1	1,424.65	0.00
level 2	1,424.65	0.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	2,362.80	0.00
level 2	2,362.80	0.00
level 3	2,362.80	0.00
level 4	2,362.80	0.00

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☑ Advise on detailed curriculum development
- ☐ Continue as a member of a permanent Advisory Committee
- ☑ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate 1.
  - ☐ Institutional
  - ☐ Community
- ☑ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: TONY FANGEAT OPERATIONS MANAGER (PLUMBER)

E-mail Address: TONY@COAD HEATING.COM

Mailing Address: 9 CARNOUSTIE COURT ST. THOMAS

ONT. N5R 0C5

Telephone(s):Bus # 519 633-4256 Cell # 519 521-6604

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☑ Advise on detailed curriculum development
- ☑ Continue as a member of a permanent Advisory Committee
- ☑ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate 1.
  - ☐ Institutional
  - ☑ Community
- ☑ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☑ Provide a tour
- ☑ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!.

Name and Title: Carl Knight

E-mail Address: ~~KR4~~ 137

Mailing Address: 137 King st South- Highgate Ont N0P 1T0

Telephone(s): Bus # 519 674 0270 Cell # 519 380 5971

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☑ Advise on detailed curriculum development
- ☑ Continue as a member of a permanent Advisory Committee
- ☑ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate 1-3.
  - ☑ Institutional
  - ☑ Community
- ☑ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☑ Provide a tour
- ☑ Provide a scholarship or award for a student/graduate
- ☑ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: Mark Barron

E-mail Address: mark.zedair@hotmail.com

Mailing Address:

Telephone(s):Bus #_____ Cell # 226-678-2607

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☐ Advise on detailed curriculum development
- ☒ Continue as a member of a permanent Advisory Committee
- ☒ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate 2 or 3.
  - ☐ Institutional
  - ☒ Community
- ☐ Teach part time in the program
- ☒ Attend classes as a guest speaker
- ☒ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☒ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: Cynthia L Barron

E-mail Address: zedair@bellnet.ca

Mailing Address: 1112 FRANCES ST

London Ont. N5W-5N5

Telephone(s):Bus # 519-455-7970 Cell # 519-520-6358

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☑ Advise on detailed curriculum development
- ☑ Continue as a member of a permanent Advisory Committee
- ☐ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate _____.
  - ☐ Institutional
  - ☐ Community
- ☐ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: Mike Demers

E-mail Address: MMDEMERS@SYMPATICO.CA

Mailing Address:
157 MADISON AVE LONDON ON
N5Z-2P5

Telephone(s):Bus # 519-451-7250 Cell # 519-281-4285

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☒ Advise on detailed curriculum development
- ☒ Continue as a member of a permanent Advisory Committee
- ☒ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate 2.
  - ☐ Institutional
  - ☒ Community
- ☐ Teach part time in the program
- ☐ Attend classes as a guest speaker
- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: James Bucholtz / owner

E-mail Address: TinBanger10@Hotmail.com

Mailing Address: 65 Main St Innerkip On

Telephone(s):Bus #_____ Cell # (519) 608-2825

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☑ Advise on detailed curriculum development
- ☑ Continue as a member of a permanent Advisory Committee
- ☑ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate 2.
  - ☐ Institutional
  - ☒ Community
- ☑ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☑ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: Marty Salliss (President)

E-mail Address: marty@sallissplumbing.com

Mailing Address:

Telephone(s):Bus # 519-652-9955 Cell # 519-521-4018

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☐ Advise on detailed curriculum development
- ☒ Continue as a member of a permanent Advisory Committee
- ☐ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate _____.
  - ☐ Institutional
  - ☐ Community
- ☐ Teach part time in the program
- ☒ Attend classes as a guest speaker
- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: _____

E-mail Address: washbrone@elmerplumbing.ca

Mailing Address: 96 CLARKE ROAD

LONDON ONT N5W-5G1

Telephone(s): Bus # 519-451-8910 Cell # _____

FANSHAWE

ADVISORY COMMITTEE MEETING - May 30, 2014
Plumbing/Sheet Metal, Welding & HVAC Techniques

Thank you very much for supporting this program development at Fanshawe College. As always, we depend upon our community partners to advise us in order to ensure that future graduates will meet the needs of employers and the profession/occupation.

As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☐ Advise on detailed curriculum development
- ☒ Continue as a member of a permanent Advisory Committee
- ☐ Provide a field placement/co-op opportunity. If checked, please indicate how many students you could accommodate _____.
  - ☐ Institutional
  - ☐ Community
- ☐ Teach part time in the program
- ☐ Attend classes as a guest speaker
- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below and leave this sheet with us as you leave. Once again – our thanks!

Name and Title: Phil Ambrose Millcreek Rep&Meet (Pd)

E-mail Address: phil@millcreek.ca

Mailing Address: 55 Progress Dr. St. Thomas N5P 4G4

Telephone(s):Bus # 519-631-9180 Cell #_____